

1. (Amended) A recording apparatus for recording video data acquired from a transport stream that includes one or more packetized video data streams, each having packet identification information, said recording apparatus comprising:

detection means for detecting at least one random-access point of said one of said one or more packetized video data streams;

analyzing means for obtaining an address of said random-access point and for distinguishing packets having said random-access point in accordance with packet identification information included in said one or more packetized video data streams;

data-base creation means for creating a data base including one or more lists of addresses of said random access point for each of said packet identification information, whereby the lists of random-access points are distinguished from each other by the packet identification information; and

recording means for recording said data base separately from said video data on a recording medium.

2. (Amended) The recording apparatus of claim 1, wherein said detection means detects said at least one random-access point according to a video sequence_header_code in said video data.

3. (Amended) The recording apparatus of claim 1, further comprising:

extraction means for extracting playback time information from said one or more packetized video data streams; and

wherein said data-base creation means creates a data base of said playback time information and said packet identification information.

4. (Amended) The recording apparatus of claim 1, wherein said analyzing means distinguishes programs according to a program map table.

6. (Amended) A method for recording video data acquired from a transport stream that includes one or more packetized video data streams, each having packet identification information, said recording method comprising the steps of:

detecting at least one random-access point of said one of said one or more packetized video data streams;

analyzing an address of said random-access point and for distinguishing packets having said random-access point in accordance with packet identification information included in said one or more packetized video data streams;

creating a data base including one or more lists of addresses of said random access point for each of said packet identification information, whereby the lists of random-access points are distinguished from each other by the packet identification information;

and

recording said data base separately from said video data on a recording medium.

7. (Amended) The recording method of claim 6, wherein said at least one random-access point is detected according to a video sequence_header_code in said video data.

8. (Amended) The recording method of claim 6, further comprising the step of extracting playback time information from said one or more packetized video data streams; and wherein said data-base further includes said playback time information.

9. (Amended) The recording method of claim 6, wherein said programs are analyzed according to a program map table.

11. (Amended) A reproducing apparatus for reproducing video data from a transport stream recorded on a recording medium, said transport stream comprising one or more packetized video data streams, each having packet identification information, and a random-access information table including one or more lists of addresses of random-access points for each of said packet identification information, with a separate random-access information table being generated and stored on said recording medium corresponding to each of one or more video programs, whereby the lists of random access points are distinguished from each other by said packet identification information comprising:

reproducing means for reproducing from said recording medium one or more of said video programs and said corresponding random-access information table; and

control means for controlling, according to said random-access information table, an access point during a random-access playback operation.

12. (Amended) The reproducing apparatus of claim 11, further comprising:

selecting means for selecting one or more of said video programs from video programs included in said video data.

13. (Amended) The reproducing apparatus of claim 11, wherein each of said random-access information tables is stored on said recording medium as a file separately from said video data.

14. (Amended) The reproducing apparatus of claim 11, wherein said addresses are indicative of an address of said recording medium corresponding to said one or more random-access points.

15. (Amended) The reproducing apparatus of claim 11, wherein said addresses include time stamp information indicative of a playback time corresponding to each of said random-access points.

16. (Amended) The reproducing apparatus of claim 11, wherein said transport stream is defined by an MPEG standard.

17. (Amended) The reproducing apparatus of claim 11, wherein addresses are formed for each of a plurality of versions of a video program.

18. (Amended) A method for reproducing video data from a transport stream recorded on a recording medium, said transport stream comprising one or more packetized video data streams, each having packet identification information and a random-access information table including one or more lists of addresses of random-access points for each of said packet identification information, with a separate random-access information table being formed and stored on said recording medium corresponding to each of one or more video programs whereby the lists of random-access points are distinguished from each other by said packet identification information, comprising the steps of:

reproducing from said recording medium one or more of said video programs and said corresponding random-access information table; and

controlling an access point during a random-access playback operation, according to said random-access information table.

19. (Amended) The reproducing method of claim 18, further comprising the step of:

selecting one or more of said video programs from video programs included in said video data.

20. (Amended) The reproducing method of claim 18, wherein each of said random-access information tables is stored on said recording medium as a file separately from said video data.

21. (Amended) The reproducing method of claim 18, wherein said addresses are indicative of an address of said recording medium corresponding to said one or more random-access points.

22. (Amended) The reproducing method of claim 18, wherein said addresses include time stamp information indicative of a playback time corresponding to each of said random-access points.

23. (Amended) The reproducing method of claim 18, wherein said transport stream is defined by an MPEG standard.

24. (Amended) The reproducing method of claim 18, further comprising the step of:

forming addresses for each of a plurality of versions of a video program.

25. (Amended) A computer program operable to instruct a multi-purpose computer to record video data acquired from a transport stream that includes one or more packetized video data streams, each having packet identification information, said computer program comprising instructions of:

detecting at least one random-access point of said one of said one or more packetized video data streams;

analyzing an address of said random-access point and for distinguishing packets having said random-access point in accordance with packet identification information ~~included in said one or more packetized video data streams;~~

creating a data base including one or more lists of addresses of said random access point for each of said packet identification information, whereby the lists of random-access points are distinguished from each other by the packet identification information; and

recording said data base separately from said video data stream on a recording medium.

26. (Amended) The computer program of claim 25, wherein said at least one random-access point is detected according to a video sequence_header_code in said video data.

27. (Amended) The computer program of claim 25, further comprising the instruction of extracting playback time information from said one or more packetized video data streams; and wherein said data-base further includes said playback time information.

28. (Amended) The computer program of claim 25, wherein said programs are analyzed according to a program map table.

30. (Amended) A recording medium on which is recorded at least one video program formed of video data comprised of one or more packetized video data streams, each having packet identification information, and a random-access information table including one or more lists of addresses of random-access points for each said packet identification information, with a separate random-access information table being associated with each of said at least one video program, whereby the lists of random access points are distinguished from each other by said packet identification information, said recording medium being formed by a method comprising the steps of:

detecting at least one random-access point of said video data;

analyzing an address of said random-access point and for distinguishing packets having said random-access point in accordance with packet identification information included in said one or more packetized video data streams;

creating a data base including one or more lists of addresses of said random access points for each of said packet identification information, whereby the lists of random-access points are distinguished from each other by the packet identification information; and

recording said data base separately from said video data on said recording medium.

31. (Amended) The recording medium of claim 30, wherein said at least one random-access point is detected according to a video sequence_header_code in said video data.

32. (Amended) The recording medium of claim 30, further comprising extracting playback time information from said one or more packetized video data streams; and wherein said data-base further includes said playback time information.

33. (Amended) The recording medium of claim 30, wherein said programs are analyzed according to a program map table.

35. Apparatus for recording on a recording medium video data acquired from a transport stream that includes a plurality of multiplexed video programs, each having packet identification information, comprising:

distinguishing means for distinguishing each of said plurality of said video programs;

detecting means for detecting one or more random-access points of one or more of said video programs of said video data;

analyzing means for obtaining an address of said random-access points in said video data and for distinguishing packets having said random-access point in accordance with said packet identification information included in said one or more video programs;

generating means for generating one or more lists of addresses of said random-access points for each of said packet identification information, whereby the lists of random-access points are distinguished from each other by the packet identification information; and

recording means for recording said video data and said random-access information on said recording medium.

36. (Amended) The apparatus of claim 35, further comprising means for generating a file that includes said random-access information table separately from a file that includes said video data.

37. (Amended) The apparatus of claim 35, further comprising selecting means for selecting one or more of said video programs from said video programs included in said video data for playback.

38. (Amended) The apparatus of claim 35, wherein said address information includes address information indicative of an address on said recording medium corresponding to one of said random-access points.

39. (Amended) The apparatus of claim 35, wherein said address information includes a time stamp indicative of a recording time corresponding to at least one of ~~said random-access points.~~

40. (Amended) The apparatus of claim 35, wherein said transport stream is defined by an MPEG standard.

41. (Amended) The apparatus of claim 35, wherein said detecting means detects each of said random-access points according to a corresponding random-access indicator included in a header of each of said plurality of video programs making up said video data.

42. (Amended) The apparatus of claim 41, wherein said distinguishing means distinguishes each of said video programs according to said packet identification information included in said video data and a program map table included in said video data.

43. (Amended) The apparatus of claim 35, wherein said distinguishing means further comprises version distinguishing means for distinguishing a plurality of versions of at least one of said plurality of multiplexed video programs from each other; and wherein said generating means generates a random-access information table for each said version.

44. (Amended) A method for recording on a recording medium video data acquired from a transport stream that includes a plurality of multiplexed video programs, each having packet identification information, comprising the steps of:

distinguishing each of said plurality of said video programs;

detecting one or more random-access points of one or more of said video programs of said video data;

analyzing an address of said random-access points in said video data and for distinguishing packets having said random-access point in accordance with said packet identification information included in said one or more video programs;

generating one or more lists of addresses of said random-access points for each of said packet identification information, whereby the lists of random access points are distinguished from each other by the packet identification information; and
recording said video data and said random-access information on said recording medium.

45. (Amended) The method of claim 44, further comprising the step of generating a file that includes said random-access information table separately from a file that includes said video data.

46. (Amended) The method of claim 44, further comprising the step of selecting one or more of said video programs from said video programs included in said video data for playback.

47. (Amended) The method of claim 44, wherein said address information includes address information indicative of an address on said recording medium corresponding to one of said random-access points.

48. (Amended) The method of claim 44, wherein said address information includes a time stamp indicative of a recording time corresponding to at least one of said random-access points.

49. (Amended) The method of claim 44, wherein said transport stream is defined by an MPEG standard.

50. (Amended) The method of claim 44, wherein each of said random-access points is detected according to a corresponding random-access indicator included in a header of each of said plurality of video programs comprising said video data.

50
51. (Amended) The method of claim 50, wherein each of said video programs is distinguished according to said packet identification information and a program map table included in said video data.

52. (Amended) The method of claim 44, further comprising the steps of:
distinguishing a plurality of versions of one of said multiplexed video programs from each other; and

generating a random-access information table for each said version.

53. (Amended) A reproducing apparatus for reproducing video data from a transport stream recorded on a recording medium, said transport stream comprising a plurality of multiplexed video programs, each having packet identification information, and a random-access information table including each of a plurality of lists of addresses of random-access points for each of said packet identification information, wherein a corresponding random-access information table is recorded for each of said video programs, whereby the lists of random-access points are distinguished from each other by said packet identification information, comprising:

reproducing means for reproducing from said recording medium one or more of said video programs and said corresponding random-access information table; and

control means for controlling, according to said random-access information table, an access point during a random-access playback operation.

54. (Amended) The reproducing apparatus of claim 53, further comprising:
selecting means for selecting one or more of said video programs from
~~said video programs included in said video data.~~

55. (Amended) The reproducing apparatus of claim 53, wherein each of said random-access information tables is stored on said recording medium as a file separately from said video data.

56. (Amended) The reproducing apparatus of claim 53, wherein said addresses are indicative of an address of said recording medium corresponding to one of said random-access points.

57. (Amended) The reproducing apparatus of claim 53, wherein said addresses include a time stamp indicative of a recording time corresponding to each of said random-access points.

58. (Amended) The reproducing apparatus of claim 53, wherein said transport stream is defined by an MPEG standard.

59. (Amended) The reproducing apparatus of claim 53, wherein said addresses are formed for each of a plurality of versions of a video program.

60. (Amended) A method for reproducing video data from a transport stream recorded on a recording medium, said transport stream comprising a plurality of multiplexed video data programs, each having packet identification information, and a random-access information table including a plurality of lists of addresses of random-access points for each of said packet identification information, wherein a corresponding random-access information table is recorded for each of said video programs whereby the lists of random-access points are distinguished from each other by said packet identification information, comprising the steps of:

reproducing one or more of said video programs and said corresponding random-access information table from said recording medium, and

controlling an access point during a random-access playback operation according to said random-access information table.

61. (Amended) The method of claim 60, further comprising the step of:
selecting one or more of said video programs from said video programs included in said video data.

62. (Amended) The method of claim 60, wherein each of said random-access information tables is stored on said recording medium as a file separately from said video data.

63. (Amended) The method of claim 60, wherein said addresses are indicative of an address of said recording medium corresponding to one of said random-access points.

64. (Amended) The method of claim 60, wherein said addresses include a time stamp indicative of a playback time corresponding to each of said random-access points.

65. (Amended) The method of claim 60, wherein said transport stream is defined by an MPEG standard.

66. (Amended) The method of claim 60, wherein said addresses are formed for each of a plurality of versions of a video program.

67. (Amended) A recording medium for storing video data, comprising:
a region for storing data video from a transport stream including a plurality of multiplexed video data programs, each having packet identification information; and
a region for storing one or more random-access information tables including at least one list of addresses of random-access points for each of said packet identification information, wherein a random-access information table is associated with each of

said plurality of multiplexed video programs whereby the lists of random-access points are distinguished from each other by said packet identification information.

68. (Amended) The recording medium of claim 67, wherein said random-access information table is stored as a file separately from said video data.

69. (Amended) The recording medium of claim 67, wherein said addresses are indicative of an address on said recording medium corresponding to one of said random-access points.

70. (Amended) The recording medium of claim 67, wherein said addresses include a time stamp indicative of a playback time corresponding to at least one of said random-access points.

71. (Amended) The recording medium of claim 67, wherein said transport stream is defined by an MPEG standard.

72. (Amended) A computer program operable to instruct a programmable processor to store video data to a recording medium having:

an instruction for storing video data from a transport stream including a plurality of multiplexed video data programs, each having packet identification information, into a first region of said recording medium; and

an instruction for storing to a second region of said recording medium one or more random-access information tables including at least one list of addresses of random-access points for each of said packet identification information, wherein a random-access information table is associated with each of said plurality of multiplexed video programs whereby the lists of random-access points are distinguished from each other by said packet identification information.